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BEYOND COMPLIANCE: FIRMS' ENVIRONMENTAL BEHAVIOUR. A SURVEY

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Beyond Compliance: Firms' Environmental Behaviour.

A Survey

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Abstract: The relationship between firms and environment is complex. The impact that firms have on the environment include the use of primary resources to make products and the production of wastes and emissions. The impact of firms' products on the environment, moreover, is not negligible. Environmental laws cannot, and should not, prescribe every decision taken by every business. Rather, consideration of environmental issues should be part of good business practice. Firms have, in fact, more than one reason for adopting environmentally responsible behaviour. This paper surveys the literature that analyze the circumstances under which firms can reconcile the apparently competing goals of increasing the expected value of their activity and internalizing external costs doing more than they are required to do under laws and regulations.

Keywords: Environment; externalities; social responsibility.

JEL classification: O13; D21, D62; M24

1. Introduction

In a most basic understanding, the sole responsibility of the firm is to increase its profit within the framework set by the formal laws of the State(s) in which it operates. This is the well-known Friedman (1970) point of view. The argument can be traced back to Adam Smith. The responsibility of the firm is to create value that can be distributed to the wider society through the appropriation mechanisms of the market, mainly through prices set by supply and demand. Thus, the deviance of firms from the narrow economic objectives is not only harmful to the firms themselves but also to the wider society (Friedman, 1990).

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Firms experience formal and informal demands for change. Even if changes are costly to the them, they can take place for at least two reasons. On one hand they can allow firm to keep a positive reputation and on the other hand they can be a consequence of its bounded rationality.

The ability to keep a positive reputation in society can, in some circumstances, be vital for a firm's ability to obtain and keep a "licence to operate", licence vital for the ability to return a profit. The reputation management approach sees reputation of the firm as a sort of capital, which represents the financial value of its intangible assets (Fombrun, 1996).

Firms, as individuals, have a rationality that is 'bounded' (Simon, 1976). Choices under uncertainty could induce them to consider doing what others do the safest strategy. This can be seen as a strategy of satisfying (Cyert and March, 1963). Therefore, if some firms engage in socially responsible activities with success, others are likely to change their previous strategy and to follow.

In the ideal world of economic theory, without market failures, maximizing profits leads the economy to a Pareto efficient outcome good for society. In contrast, in the real world there are differences between the private and social costs of making and using products and services. Non-alignment can be often costly and damaging to the corporation. According to Heal (2007), corporations over-comply to internalize external effects - something that they find in their long-term interests because it reduces the sources of conflict between them and society.

If environmental externalities were the only departure from the assumptions of perfect competition and if no firm had preferential access to superior stocks of natural resources, it would be impossible to internalize costs voluntarily without losing one's customers or selling output at a loss. But where externalities coexist with other departures from the competitive paradigm – such as asymmetric information and oligopoly – a firm may be able to increase its expected value through the voluntary internalization of negative external effects (Reinhardt, 1999).

In fact a number of firms, especially in Europe and North America, assert that they are pursuing beyond compliance environmental policies (Smart, 1992).

To investigate corporate motivations for pursuing over compliance and analyze the impact of socially responsible initiatives on company performance might help to visualize the linkage between motivations and results of undertaking socially responsible practices along both ethical and economic dimensions.

Firms, as said, may find in their shareholder's interests to internalize external costs to a greater degree than required by law. The economically rationale explanations for such firm's policy can be found in two strands of literature¹: the Corporate Social Responsibility (CSR) literature that explains why firms assume social responsibility going beyond compliance with laws and regulations and the voluntary agreements literature. The two strands of literature we are going to review, analyze the circumstances under which firms can reconcile the apparently competing goals of increasing its profit and increasing the provision of environmentally friendly goods.

One explanation for such policy is that it increases the expected value of the firm. Therefore, it increases expected revenues or lowers expected costs. On the revenues side, the firm might be interested in reducing the probability or magnitude of revenue losses (due to boycotts or to changes in consumer tastes), or it may be interested in capturing a price premium for its products. On the costs side, the firm might aim at reducing the prices or the quantity of inputs that it must purchase, or at reducing the probability or magnitude of losses arising from possible future regulation or litigation.

CSR drivers can be generally categorized as either market forces or political forces. Market forces include win/win opportunity to cut costs by improving the efficiency of resources use; green consumers willing to reward firms that over comply by redirecting their demand towards these firms (Arora and Gangopadhyay, 1995); labour market advantages with employees who have green preferences; reduced cost of capital from green investors. The firms' decisions of going beyond compliance with law in order to reduce the risk of tighter regulation or to induce the government to choose a form of regulation more favourable to them (Segerson and Miceli, 1999; Maxwell, Lyon and Hackett, 2000; and Lutz, Lyon and Maxwell, 2000) are included in the political forces. Some of these forces, as we will see, drive the adoption of voluntary agreements as well.

¹ The so called "no regret option" is the focal point of a third strand of literature. According this literature, many firms behave as though free lunches exist. Their objective is to identify and lessen environmental impacts while saving money. The existence of a free lunch depends on market imperfections and on difficulties in monitoring managers who may be pursuing their own agendas. If competition is imperfect and if information does not flow freely within the firm, it may be possible for cost savings to go unexploited (Milgrom and Roberts, 1992; Tirole, 1988). Bréchet and Jouvét (2009) show that pollution abatement is costly but that implementing internal environmental management may lead to increases in factors' productivity. When comparing situations with and without environmental management, a firm may gain from going green, which is a no-regret option.

The use of voluntary agreements can in fact be justified in several cases. The common denominator of these cases is the presence of inefficiencies, market failures and strategic behaviour related to imperfect competition in the product market.

Factors such as the managerial altruism, the emergence of a new generation of savvy business leaders who take pro-active steps to avert political conflict should not be disregarded. Voluntary actions internalizing environmental externalities seem to be socially responsible. However Maxwell and Lyon (2008) raise, between others, the following question: it is socially desirable for managers to take costly environmental initiatives at the expense of shareholders?

The welfare effects of CSR are difficult to establish and have not received a lot of scholarly attention. Nevertheless, the literature provides some insights into the welfare effects² of strategic CSR³.

This paper aims to individuate the circumstances under which environmental over compliance might be sensible from the firm's point of view. At this purpose, it is organized as follows: Section 2 investigates on negative externalities and regulation. Section 3 analyzes the corporate motivations for taking part in CSR practices along both ethical and economic dimensions. The voluntary agreement literature is analysed in section 5. Section 6 concludes.

2. Negative externalities and weaknesses of regulation

The perfect competition conditions, according to economic theory, assure the absence of dissociation between the economic and social frontiers of the firm. If the enterprise succeeded in best serving the interest of all its stakeholders by focusing on the maximization of its profits and optimizing its process of production, than it operates under those conditions.

Given this absence of dissociation between the economic and social frontiers and given that market and the governments regulate the firm, the responsibilities of this latter have been considered, generally, of a legal rather than social character.

² Some scholars have questioned the CSR welfare effects on the basis of political and economic arguments (Friedman, 1970; Henderson, 2001; Reich, 2007) but these arguments have not always been addressed by others.

³ There exists three types of CSR namely: ethical, altruistic, and strategic. Lantos (2001), for example, argues that for any organization, ethical CSR (avoiding societal harms) is obligatory. For a publicly-held business, altruistic CSR (doing good works at possible expense to stockholders) is "not legitimate," and that companies should limit their philanthropy to strategic CSR (good works that are also good for the business).

Even if, in theory - at the moment when it is solely preoccupied with its economic boundaries - the firm contributes to the general welfare, numerous economists have noted that in practice the market mechanisms are unable to best serve the welfare of all stakeholders (Cornes and Stander, 1999). In many situations the market demonstrates its failures in this regard.

These failures which were identified in the beginning of the twentieth century by welfare economists are, as it is known, called negative externalities. A negative externality or a negative external effect designates the fact that in the course of its process of production and thus in its creation of value the firm transfers some costs onto its environment and stakeholders (Papandreou, 1994). The “*social costs*” or external costs designate costs which are necessary to the creation of value but which are not assumed by the producer (Coase, 1960; 1988), they are rather sustained by the stakeholders. A portion of the profit generated by the firm is earned to the detriment of the stakeholders.

On the one hand the transfer of social and environmental costs on stakeholders is an endemic firms’ practice. On the other hand, environmental quality is a determinant of well-being and an important policy issue. In response to poor environmental conditions, in many countries, environmental policies and regulations have been implemented to improve them⁴.

From the beginning of the 1980s, firms brought about a radical mutation in their processes of production: they decentralised and globalized. Because of this double transformation market and governments have become incapable of reducing the gap between the economic and social boundaries of the firm. As a result a reflux of “social cost” is imposed on the stakeholders.

Government intervention designed to correct market failures leads to corruption and inefficiencies⁵ in many developing countries and in advanced economies as well⁶. As it is known, firms sometimes use the familiar tools of campaign contributions and lobbying to influence and or to delay future regulations.

⁴ The last three decades have seen the establishment of numerous international norms and standards for environmental protection. These have generally taken the form of treaties, conventions and multilateral environmental agreements (MEAs). It is unlikely that the implementation of much MEAs will be achieved through public initiative alone (Siegele and Ward, 2007).

⁵ The presence of government corruption is interpreted by some social scientists as evidence that most politicians try to further their career or wealth rather than correct market failures (e.g. Shleifer and Vishny, 1994).

⁶ See De Soto (1989) on corruption and Lal (1985) on misallocation of resources.

Even when regulations have been promulgated by politicians well intentioned, in absence of lobbying activities, they are unlikely to have much impact on corporate behaviour unless government undertakes costly monitoring and enforcement activities⁷. Regulatory agencies are chronically underfunded, therefore regulators must carefully allocate their enforcement resources. As a result, companies viewed by regulators as socially responsible are likely to be monitored less frequently. This is not exactly a good result for social welfare.

It is true that states can, for instance, tax firms that pollute excessively. Compared to reputational effects, which may indirectly harm corporate profits, the use of fiscal powers can reduce or increase profits directly, thus constituting a potentially high powered incentive device. However, it is true too that states often fail.

The institutional weaknesses favour the emission of negative externalities and thus unprecedented possibilities for maximization of profit. It seems that civil society has organized itself in order to reduce social costs. In response to the weakness of market and governments, new institutions have indeed emerged. Alongside the legal responsibilities enforced by market and governments, the new institutions define a group of responsibilities with an uncertain character which are designated as “social”. The firms themselves appear to be the motive forces of the process of internalization of social costs.

When the regulator lacks information about the costs of alternative policies, for example, the CSR can play an important informational role. As shown by Denicolò (2003), for example, a firm’s voluntary adoption of a clean technology can signal to the regulator that the cost of adoption is low. Consequently the regulator may find socially desirable to mandate the adoption of a clean technology.

Obviously a CSR initiative’s (or a voluntary agreement’s) range of action is restricted respect to that of a law. An environmental law, for instance, applies to all firms of a certain size. Health and safety laws apply to all firms operating certain types of facilities. CSR measures cannot claim the same degree of coverage. Indeed, they generally apply to only a subset of (self-selecting) firms: they are initiative based on voluntarism.

⁷ Acemoglu and Verdier (2000) develop a framework to analyze the links between government interventions and government failures. They assume that: government intervention requires the use of agents (e.g. regulators) to collect information, make decisions, and implement policies and that these agents are self-interested and, by virtue of their superior information, hard to monitor perfectly.

3. The Corporate Social Responsibility

From the well-known Friedman (1970) point of view, the Corporate Social Responsibility (CSR) is clearly irresponsible: any expenditure on CSR activities will put the company at a competitive disadvantage and so result in a negative relationship between these activities and market performance.

In fact, the CSR literature emerged as a criticism of the neoclassical theory which - on the presumption that market forces and government will address harmful activities - postulates that companies should maximize their profits (Heugenes and Dentchev, 2007).

Trough CSR companies consider the interests of society by taking responsibility for the impact of their activities on communities in all aspects of their operations. This responsibility is seen to extend beyond the statutory obligation to comply with legislation: organizations proactively integrate the voice of parties affected by business activities in corporate decision making and voluntarily take further steps to improve the quality of life for employees and their families as well as for the society at large.

There is no consensus on the definition of CSR. One interpretation, adopted by the European Commission (2001), is that CSR is 'a concept whereby companies integrate social and environmental concern in their business operations and in their interaction with their stakeholders on a voluntary basis'. A number of alternative approaches reflect different views on the utility of CSR in framing the role of business in society. In line with the European Commission's interpretation, many businesses understand CSR as encompassing only voluntary activities beyond compliance with legal requirements (Siegele and Ward, 2007).

Seeing CSR as a means rather than a goal is the major argument against the proposition that CSR is irresponsible. For instance, looking at the environment management, pollution can be seen as a waste of resources (e.g. raw materials are turned into pollution rather than products which can be sold). Thus by reducing waste firms might get a more efficient production and might contribute to a cleaner environment as well (Porter and v.d. Linde, 1995).

The opportunity for a more effective organization of the firms' internal use of resources is not the sole explanation for the rationale behind CSR. The firm is dependent on a number of core stakeholders whose acceptance and support is instrumental for its success. The firm's incentive to incorporate stakeholders' interests in its own policies depends on the power of each relevant stakeholders group. The

studies that have tested the effects of CSR on consumers (Sen and Bhattacharya, 2001) and perspective employees (Greening and Turban, 2000) have not come to conclusive results.

The relationship between corporations and environment is complex. The impacts that corporations have on the environment include the use of primary resources to make products: the use of energy and water and the production of waste and emissions. Moreover, the impact of the use of their products on the environment is not negligible.

Environmental law cannot, and should not, prescribe every decision taken by every business. Rather, consideration of environmental issues – the direct and indirect environmental impacts of the business and the risks and opportunities associated with them, should be part of good business practice.

Socially responsible initiatives for the most part are welcomed by employees, consumers, investors, regulators and the public. But is it really socially desirable for managers to take on costly environmental initiatives that are not required by law?

The notion of CSR, as said above, means different things to different people. We define environmental CSR environmentally friendly actions going beyond compliance to what is required by laws and regulations.

Perhaps pollution is symptomatic of broader production inefficiencies, and pollution reduction and cost reduction go hand-in-hand to create “win/win” opportunities. An environmentally responsible firm expects to enhance revenues. Because of world-wide focus on environment, consumers are demanding more environmentally friendly manufacturing and packaging of products and, in some cases, willing to pay extra for products whose social and environmental credentials are clear to them. Perhaps firms are simply responding to this shift. Or perhaps business has become savvier about the workings of the political system, taking pro-active steps to avert political conflict rather than reacting to public pressure after the fact (Lyon and Maxwell, 2008).

A reputation for being environmentally considerate can enhance a company’s image in the eyes of consumers and improve its relations with regulators. Poor corporate performance is often targeted by local community and customer activists because of its associated negative externalities, and non-compliance with environmental laws can elicit coercive pressure in form of penalties imposed by government regulators.

An environmentally responsible strategy has both benefits and costs associated with it. Curcio and Wolf (1996) argue that the latter have been often emphasized while

the former have been discounted or completely ignored. Potential benefits accruing to an environmentally responsible firm can be categorized as: 1) lower operating costs, 2) lower cost of capital, 3) decreasing in regulatory risk resulting from change in environmental regulation and 4) enhanced revenues.

Lower operating costs can be the result of a number of factors. Firms that have chosen an environmentally proactive strategy may be able to decrease costs associated with employees. It may be possible to reduce insurance premiums related to employee disability and worker compensation insurance. A more environmentally correct behaviour may translate into the ability of a firm to attract highly qualified workers while decreasing turnover, recruiting and training costs. The possibility of litigation and that of environmental accidents are reduced.

Reducing externalities affects the firm capacity to obtain credit. Lenders and rating agencies scrutinize a firm's environmental record, responsibility and risk. A firm found environmentally deficient is thought to face potentially substantial fine and/or to bear large expenditures to comply with regulation. These expenditures could make the firm unprofitable or result in insolvency. A more environmentally responsible firm will, all other things equally, receive a higher credit rating.

According to Heal (2007), companies that reduce the potential for conflict between themselves and the rest of society by reducing external effects may be rewarded by the stock market, which seems averse to companies with bad environmental records. They may avoid the attentions of socially responsible investors, whose boycotting of stocks seems to be capable of producing undervaluation, and also avoid the attention of shareholder activists.

Being environmentally conscientious might involve investments in technology, methods, tools, and raw materials that are higher than is the case for the environmentally indifferent. However, it is also claimed that these investments will bring advantages in a number of ways, resulting in increased profits in the end⁸. Accordingly, adopting environmentally conscious behaviour becomes a source of technological innovations that brings advantages to companies as well as society (Cetindamar and Husoy, 2007).

⁸ Porter and van der Linde (1995) provide numerous examples of firms that increased their resources use efficiency, reducing pollution and costs at the same time.

Firm's sunk investments constrain its subsequent actions, and hence the actions of its competitors⁹ and of regulators. As we will see in the next section, corporate leaders may strategically commit to modest environmental improvements that constrain regulators' ability to set tough standards. A firm's sunk investments make it very costly to re-tool and achieve more substantial improvement in environment quality, so if the regulator cares about industry profits as well as environmental performance, he will set a weak standard so as not to dissipate profits too much.

On the one hand the private sector generally prefers the flexibility of self-designed standards. On the other hand regulation in itself is unable to cover every aspect of detail in a corporation's process.

Summarizing, CSR can potentially decrease production inefficiencies, and at the same time allow companies to increase sales, increase access to capital and new markets. Some activities result in an immediate cost-saving, other activities bring reputational benefits to the company which increase both profitability and market valuation in the long-term or dissuade future action by Government which might impose significant costs on the company.

4. The voluntary agreements

The literature distinguishes several types of voluntary agreements (VA): unilateral commitments (aiming to reduce pollution without any obligation)¹⁰, negotiated agreements (that is individual negotiations between regulator and either a firm or an industry), and public voluntary schemes (schemes in which environmental regulators define a program with requirements concerning commitments, deadlines and rewards). It is clear that in each of them the degree of involvement by the public sector is different.

A firm adopts a VA only if it raises its profits. Therefore, the adoption of a VA is accompanied by a shift in either the demand or supply curve or both.

Brau e Carraro (2004) distinguish between demand-side and supply-side incentives to adopt voluntary agreements. This distinction helps to identify which economic factors favour the adoption of voluntary agreements and affect their environmental effectiveness and economic efficiency.

⁹ As one might expect, the level of competition in a market affects the amount of environmental CSR firms undertake.

¹⁰ The term self-regulation refers to unilateral commitments which consist of environmental improvement initiatives taken by firms and communicated to their stakeholders.

4.1 Incentives to adopt Voluntary Agreements: the demand side

In models of VAs where the demand effect is predominant, the participation motive is to capture the consumers' willingness to pay for environmental attributes of a firm's product. VAs become a differentiation strategy. Obviously this explanation is only valid under imperfect competition conditions, where firms can affect the industry demand schedule, and when consumers - which value a clean environment in their utility function - are ready to pay a higher price for non-polluting goods or goods produced using a clean technology. Hence, market demand shifts upward when "clean" products are sold in the market. This increases firms' profits, thus providing them an incentive to voluntarily carry out emission abatement.

The demand curve is also steeper for any output level. Hence, in the presence of green consumers, firms can increase their market prices without suffering excessive demand reductions; they increase their market power.

Cases where consumer's environmental preferences affect the industry market demand for a homogeneous good are analysed by Garvie (1999) in order to identify the conditions under which voluntary regimes are likely to be a viable alternative to mandatory regimes. His model deals mainly with unilateral commitments and includes the two market demand shift and increased slope effects briefly discussed above. Garvie analyses the behaviour of (identical) firms involved in a competition à la Cournot and coping with a market characterised by the presence of green consumerism (consumers' preferences are assumed to be separable into product and environmental characteristics). The consumers' willingness to pay - or the inverse demand curve of consumers that care about environmental consequence of production - for a pollution generating good Q is given by the following relationship:

$$P(Q,Z) = f(Q) - MD(Z)$$

where Z is the level of pollution emitted during the production process and $MD(Z)$ is the monetized value of the environmental damage caused by an additional unit of pollution. The "green" consumer's willingness to pay for a product is decreasing in the level of consumption, Q , due to the diminishing marginal benefits of consumption, and decreasing in the level of pollution generated by the industry.

When at least one firm improves its environmental performance, industry demand shifts outwards. The author assumes that consumers perceive only a fraction of the total environmental damage resulting from the production process, with the two polar

situations of zero and total information as special cases. The more consumers are informed, the larger the market demand outward shift induced by a voluntary emission reduction, and the steeper the demand curve. Given the presence of demand effects, firms will use both their production and emission reduction decisions as strategic variables.

From this theoretical framework it emerges that voluntary abatement is an increasing function of consumers' sensitivity to environmental variables. The optimal firms' damage abatement is equal to zero only if consumers attribute no value to the environmental damage caused by the production of the good. When consumers have a partial awareness of environmental damage, firms' abatement is sub-optimal with respect to the socially optimal abatement level.

Market power is enhanced when VAs are adopted, therefore these agreements have anticompetitive effects. Market structure affects social welfare: More concentrated industries, where co-ordination among firms can be achieved more easily, can guarantee higher environmental effectiveness as well as higher economic efficiency.

Examples of a generalization of the basic industry-wide demand effect are given by cases in which VAs are also used as a means to increment consumer sensitivity to a firm's environmental performance. In other words, VAs can be considered as a way to increase a firm's reputation *vis à vis* imperfectly informed consumers, which associate an additional value to environmentally friendly products or processes, but are unable to assess the quality of the products they purchase.

Possible solutions to this asymmetric information problem depend on the firms' strong incentives to build a green reputation for their goods. Such incentives enable consumers to evaluate the environmental quality of a product from a given period onwards. As pointed out by Cavaliere (2000), two cases correspond to this situation: a) a firm's environmental performance is an 'experience good', that is to say individuals can infer the environmental quality of a good when consuming it; b) environmental quality becomes 'common knowledge' once some form of a publicly recognised VA is adopted.

Indeed, in the latter case, in which environmental quality is a 'credence good', that is to say a situation where the environmental impact of a product cannot be ascertained either by purchasing it, the adoption of a VA enables firms to acquire a reputation otherwise impossible to reach.

Cavaliere (2000) presents a model with repeated interactions between a monopolist and a large number of uninformed consumers. In the model, the main result regarding the firm's behaviour is that, if the firm characterises its type as a high quality one, it will find optimal to produce a high quality good in every period. If the firm characterises its type as a low quality one, it will randomize its production between a 'green' or a 'brown' good at least in the first periods of the repeated game.

Consumers' sensitivity to environment quality may also provide a firm with an incentive to increase its own demand and market share *vis à vis* its competitors. This can be done by differentiating its own product with respect to those offered by competitors, thus creating a niche market where a higher market price can be imposed.

This point is formally shown, for example, by Arora and Gangopadhyay (1995). The two authors propose an economic model of overcompliance - that relies on the fact that consumers value environmental quality - in which firms play a two stages oligopoly game where they can signal "greenness". If consumers prefer to buy products from a "greener" firm, then the cost of being environmentally friendly may be justified by higher revenues. Firms first choose a level of environmental clean-up and then engage in price competition.

Firms differ in their cost of environmental clean-up. Consumers with different incomes have different willingness to pay for cleaner products. Consumers differ in their marginal utilities of income.

Arora and Gangopadhyay show that under these assumptions the market is segmented by income levels and the firm with the lower cost of clean-up over complies. They assume that the firms' environmental technology is observable by consumers and this allow them to choose the clean firm.

More generally, environmental soundness of a product is usually unobservable by consumers. Where mandatory self-reporting schemes exist the truthfulness of firms' claims remains questionable. Moreover, the observed incidence of overcompliance goes far beyond cases where mandatory self-reporting schemes exist. The presence of poorly informed consumers forces firms to adopt VAs, that is to voluntarily over comply to signal their friendliness with environment.

When firms can choose their emission technology, in equilibrium there will be two types of firms in the market, one with high and the other one with low emissions per unit of output. Lutz, Lyon and Maxwell (2000) generalise these findings to the case in

which consumers do not have complete awareness of the environmental benefits. The VA can be seen as the choice by the “greener” firms to engage in non-mandatory abatement levels, while the less environmental efficient firm will simply meet the already existing standards.

Product differentiation models can constitute a useful starting point for an analysis of how VAs perform when ‘command and control’ or other ‘economic’ environmental policy tools are also adopted by a regulator. According to Arora and Gangopadhyay (1995) and Lutz *et al.* (2000), in cases in which consumers’ tastes are heterogeneous and products are differentiated, the use of an effective minimum standard is recommended. Intuitively, the ‘worst’ firm wants to move as little as possible from its optimum and, as a consequence, will meet the mandatory standard exactly. Then, in order to maintain product differentiation, the best firm will overcomply with the standard.

In cases in which consumers are not able to directly assess the ‘green’ nature of the good they purchase, we should expect that some goods would find their way onto the market pretending to be ‘green’, even though they are not, thus bringing about adverse selection like market failures.

A situation in which markets are oligopolistic and products are differentiated can actually favour the emergence of environmental VAs. In this setting, VAs become a form of ‘strategic social corporate responsibility’ (Bagnoli and Watts, 2003), where differentiation is aimed at increasing profits.

The consequence is that firms’ profits can increase, but higher prices may reduce the consumers’ surplus, thus partly offsetting the environmental benefit achieved through the voluntary adoption of a clean technology.

4.2. Incentives to adopt voluntary agreements: The supply-side

Intuitively, the adoption of a VA has a cost but, once in force, the improved efficiency brought by it, determines a decrease of the firm’s overall production costs. A VA adoption may therefore bring about a downward shift of the firm’s (and market) supply curve

The main cases in which this effect occurs are when VAs are aimed at shaping regulatory activities and obtaining savings in the cost of firm’s inputs or in the use of them.

The first case is sometimes referred to as a regulatory gain, identifiable in the larger profits accruing to firms from avoiding the costs of some form of environmental regulation (the so-called regulatory threat). In particular, by signing a VA, firms can avoid or postpone the introduction of more costly regulations, or weaken the pressure from existing or forthcoming public intervention policies (Brau and Carraro, 2004).

Another category of supply shifts not related to any regulatory threat is linked instead to the so-called 'saving inputs' effect (OECD, 1999). This term refers to the increased efficiency of the overall production process which can be associated with the adoption of a voluntary environmental code. In other words, firms adopting a VA may consequently learn to optimise their production process or acquire information about best available technologies.

A VA adoption by firms with low abatement costs could be directed to 'inducing regulation'. Suppose that a firm can reduce pollution more cheaply than other firms in its industry and thereby can contribute to improved air quality at a lower cost than its rivals. In this case its executives might wish to bring about a situation in which all of the industry's firms have to reduce pollution so that costs increase for all of them. This forces less efficient firms to exit the market. A way to do this is to encourage government authorities to force collective action (Reinhardt, 1999). The efficient firm gains therefore more market shares for itself.

In other words, a way for firms to reconcile increased provision of environmental quality and increased profits is to persuade government regulators to constrain competitors' behaviour. Here the relevant literature is that on rent-seeking (Krueger, 1974).

In other cases, a VA could promote the conditions for collusion among firms.

Firms might adopt a VA because they value this option as the most appropriate way of minimising the costs associated with the regulatory decisions of public authorities. The baseline assumption is that, by reducing emissions through a voluntary action, firms reach a given objective at lower costs than in circumstances where they are forced to meet a compulsory standard (OECD, 1999).

There exist several explanations for why a voluntary regime can be less costly for both firms and the public sector. They include the greater flexibility associated to VAs in implementing environmental targets and the reduction in the size of transaction costs as a consequence of shared uncertainty between firms and public authorities (Glachant, 1999).

Another possible scenario is when a well chosen abatement level can definitively pre-empt a regulatory intervention that would have imposed a tighter standard.

The literature on voluntary agreements proposes both theoretical examples where firms use VAs to pre-empt a stricter regulation that they cannot influence and models in which firms can also influence the severity of the regulatory threat.

In a model introduced by Segerson and Miceli (1998) the regulatory threat comes in the form of a mandatory regulation. This model considers the strategic interaction between a single firm and a regulator initially entitled to make a take-it-or-leave-it offer to the firm while being subject to the constraint of maximising social welfare. The opposite case where the firm has all the bargaining power and makes a take-it-or-leave-it offer to the regulator is considered as well.

The model aims to determine whether a VA to reduce pollution is likely to be successfully negotiated, and, if so, what the equilibrium level of abatement under the agreement would be under alternative assumption regarding the allocation of the bargaining power between parties. The results suggest that, given the potential savings under a VA, such an agreement will always be the equilibrium outcome of the interaction between the firm and the regulator.

However, the level of abatement upon which the parts agree will depend on: the allocation of bargaining power between the regulator and the firm and on the magnitude of the regulatory threat anticipated by the firm.

According to the authors, a negotiated agreement is “a good thing” for the society because it is assumed that transaction costs for the public side are lower under the voluntary regime, and because the establishment of a mandatory standard is conditional on the uncertain intervention by a legislative assembly.

The agreement is potentially profitable for the firm as well, because it can pre-empt the legislative standard and because the hypothesis of lower transaction costs is also made for industry. Hence, on the whole, unitary costs of pollution reduction are lower when an agreement is signed.

In Maxwell *et al.* (2000) a firm chooses whether to voluntarily abate its impact on environment in order to pre-empt stakeholders (e.g. consumers) and the regulator's intervention; to influence the regulator's intervention to its own advantage; to improve competitiveness with respect to other firms. The model is structured as a non-cooperative three-stages game and firm achieves these objectives sequentially. The endogenization of the severity of the regulatory threat is modelled in the second stage as

an influence game played between firms and consumers, with the latter favouring a stricter regulation and ready to 'activate the game' if the total cost of lobbying is smaller than the expected benefit in terms of stronger mandatory abatement levels. The payoff of the influence game is the definition of a mandatory abatement level to be added to the voluntary one. The total emission reduction achieved by the firms is thus the sum of the two components.

When firms self-regulate, they reduce consumers' incentives to undertake lobbying activities, but must also compare the advantages of VAs *vis à vis* the gains from their lobbying activities. Different hypotheses can be made about the costs and benefits of these activities. It is usually recognised that industries have a competitive advantage in the environmental policy arena, because lobbying costs are directly related to the number of components of the pressure group (due to organisational problems).

The two authors show that, within the influence game, the level of mandatory abatement is lower than when no lobbying activity is undertaken, but also argue that the VA option is even more cost effective in reducing mandatory requirements. A firm may offer a VA which makes it unprofitable for consumers to engage in the influence game. Self-regulation by firms would therefore primarily be instigated by the aim of 'keeping stakeholders quiet'.

When considering the costs of regulatory capture activities for both consumers and firms, pre-emption of the influence game Pareto-dominates the case when the influence game is played. The fact that it can actually be played indicates the occurrence of a prisoner's dilemma situation.

VAs can be a strategic variable through which firms can affect regulation. Regulatory gains arise from the avoidance of lobbying conflicts or, at least, from making these fights less intense. Given that the latter can usually be seen as an unproductive expense, this is another argument in favour of VAs (Brau and Carraro, 2004).

5. Concluding remarks

Starting from the idea that the wish of a part of firms to assume - beyond their economic responsibilities - a social responsibility appears to be ambiguous, in this paper we asked why firms should be considered socially responsible, if new responsibilities give rise to additional production or transaction costs in the short term.

In order to find an answer to this question we surveyed two strands of literature. The survey, even if incomplete, allow us to say that when the relationship between business and society is considered, companies face a conflict of aims between maximizing shareholder and stakeholder value. On the one hand, social responsibility might help to meet objectives that produce long-term profits, on the other hand it might be a step towards a better society.

The existent differences between the private and social costs of making and using products and services can generate conflicts and can often be costly and damaging to the corporation.

Corporations go beyond what is legally required by laws and regulations in force, to internalize external effects - something that they find in their long-term interests because it reduces the sources of conflict between them and society. The external costs transferred on the stakeholders have financial repercussions in the long term. Thus the motivation for certain firms to voluntarily reduce their external costs is derived from an understanding of their best interests.

CSR proponents argue that there is a positive relationship between CSR activities and corporate performance for reasons such that the costs are small while the benefits are potentially large. A good reputation is thought to translate into improved sales and profitability or higher stock price and a bad reputation into their opposite. Firms will act in a socially responsible manner in order to maintain positive reputations among the public, proponents argue. They will choose to do what is economically in their best interests.

There is reason to question the strong rationality that CSR proponents attribute to firms. Firms, as individuals, have a bounded rationality. It is not self-evident that if the posited incentives exist, firms will necessarily choose to act upon them. On the other hand, choices under uncertainty could induce the firm to consider doing what others do the safest strategy. The CSR firm's assumption could be the consequence of an imitative process.

Anyway, as we said, the voluntary nature of CSR measures implies that they are less comprehensive than State regulation, as they rely on the "enlightened self-interest of companies" to pursue action in support of their goal.

The moral, political and economic arguments for CSR analyse this latter from a social perspective, i.e., focusing on the effects on society. Moral arguments mainly concern the question whether business should contribute to social welfare, whereas

political and economic arguments concern the question how, and under what conditions business will contribute most to it at the aggregate level. In contrast, ethical and financial incentives usually explain CSR from a company perspective. Such incentives are useful to analyse the reasons why business engage in CSR, but less so to analyse the aggregate impact of CSR initiatives on society.

Both CSR and Vas are strategic for a firm. To adopt a CSR initiative consists in going beyond the existent law and regulations. Probably it is just a strategy that aims to increase profits but it might be a self-interested illuminated initiative.

To adopt a unilateral voluntary agreement might be considered a CSR practice. A firm behaving as a rent-seeker that tries to reconcile increased provision of environmental quality and increased profits by persuading government regulators to constrain competitors' behaviour is not too socially responsible.

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